PHASE THREE: CONTROL
COLOR CONTROL

Mission: Can we draw lines to control how materials move?

Age: 5+
Materials: $8

Time: 30 min
(Set-up: 5 min | Activity: 20 min | Clean-up: 5 min)

What you need:

Materials:
- 4 coffee filters (or paper towels)
- Sharpie marker
- Food coloring (at least 2 colors)
- Water

Equipment:
- Ruler
- Scissors
- Small cups

What to do:

1. Cut a 2-inch square from a coffee filter. Using a Sharpie marker, draw the lines shown in Figure A on the next page. Cut away the shaded area to leave two tabs (A and B) on the bottom.

2. Pour water into the cups, filling them close to the top. Add one color of food coloring to each cup, enough to make the colored water very dark (10 drops or more). If you want to try different color combinations, you are definitely welcome to do so! Swirl gently to mix.

3. Place the coffee filter into the cups so that tab A dips into one color and tab B dips into the other. You can hold the paper device by hand or using a clamp (clothes pin) or tall glass to support it. (See figure B.)

4. Watch as the colored water moves up the filter. What happens as the path divides? Try drawing other designs!

Notes:
- Paper towels work just as well as coffee filters.
- To avoid color-leakage issues, make sure the boundaries drawn by the sharpies are dark enough.
- If you want the fluid to go faster, you can try to make the device smaller than 2 inches. Also, you can sit the device flat on the two cups, like in figure C on the next page.
- Why not draw your favorite pattern and see how flow can color them. See Figure D for some examples we made to inspire you.

Clean-up:

Colored water can be poured down the drain. Throw coffee filters in the trash. Please be aware that the Sharpie can leave a stain on the desk, which can be cleaned up with isopropanol or alcohol.

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Figure A

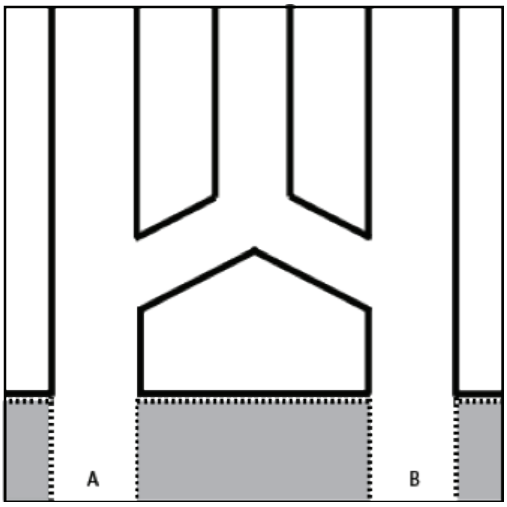

Figure B

Figure C

Figure D